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EXAMINER

PATEL, NIMESH G

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/075,121	Applicant(s) BOLT ET AL.	
	Examiner Nimesh G Patel	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
 4a) Of the above claim(s) 28-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 28-42 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Newly presented claims 28-42 introduce a subcombination of a plurality of IDE devices in a housing, a circuit board with connectors for coupling the IDE storage devices and USB controller, IDE devices and USB controller connected without cables, housing comprising a rack for supporting packs of IDE storage devices and polling and not polling by the USB controller. This subcombination has a separate utility such as server racks.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 28-42 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. 1-2, 10-11, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs('788), in view of what is well known in the art, as exemplified by Burke et al.('478).

3. Regarding claim 1, Jacobs discloses a USB system for data communication between a processor and IDE devices, comprising: a plurality of IDE devices(Column 5; Lines 29-33); a USB-to-IDE bridge(Figure 5, 156), wherein the IDE devices are connected to the USB-to-IDE bridge; and a USB controller(Figure 5, 130; It is inherent the host has a USB controller), wherein the USB-to-IDE bridge is connected to the USB controller, whereby the processor can communicate with the IDE devices via the USB controller.

Jacobs does not specifically disclose a plurality of USB-to-IDE bridges, wherein each IDE device is connected to a respective USB-to-IDE bridge. However, OFFICIAL NOTICE is being taken that using multiple bridges is well known in that art to increase the number of devices connected. Further, as evidence, Burke discloses multiple bridges to connect multiple devices(Figure 1). Therefore, it would have been obvious to use a plurality of USB-to-IDE bridges in the system of Jacobs since this would allow more IDE devices to be connected in Jacobs' USB system. Therefore claim 1 is rejected.

4. Regarding claim 2, Jacobs discloses a system, wherein at least one of the IDE devices comprises a hard disk drive(Column 3, Lines 55-57).

5. Regarding claim 10, Jacobs discloses a method for connecting multiple IDE devices to a processor for data communication(Column 5; Lines 29-33), comprising the steps of: providing a USB-to-IDE bridge(Figure 5, 156); connecting the IDE device to the USB-to-IDE bridge; providing a USB controller(Figure 5, 130; It is inherent the host has a USB controller); and

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connecting the USB-to-IDE bridge to the USB controller, whereby the processor can communicate with the IDE devices via the USB controller.

Jacobs does not specifically disclose a plurality of USB-to-IDE bridges, wherein each IDE device is connected to a respective USB-to-IDE bridge. However, OFFICIAL NOTICE is being taken that using multiple bridges is well known in that art to increase the number of devices connected. Further, as evidence, Burke et al.('478) discloses multiple bridges to connect multiple devices(Figure 1). Therefore, it would have been obvious to use a plurality of USB-to-IDE bridges in the system of Jacobs since this would allow more IDE devices to be connected in Jacobs' USB system. Therefore claim 10 is rejected.

6. Regarding claim 11, Jacobs discloses a method, wherein at least one of the IDE devices comprises a hard disk drive(Column 3, Lines 55-57).

7. Regarding claim 18, Jacobs discloses a data storage system, comprising: a plurality of IDE storage devices(Column 5; Lines 29-33); a USB-to-IDE bridge(Figure 5, 156), wherein each IDE storage device is connected to the USB-to-IDE bridge; and a USB controller(Figure 5, 130; It is inherent the host has a USB controller), wherein the USB-to-IDE bridge is connected to the USB controller, whereby a processor can communicate with the IDE storage devices via the USB controller.

Jacobs does not specifically disclose a plurality of USB-to-IDE bridges, wherein each IDE device is connected to a respective USB-to-IDE bridge. However, OFFICIAL NOTICE is being taken that using multiple bridges is well known in that art to increase the number of devices connected. Further, as evidence, Burke et al.('478) discloses multiple bridges to connect multiple devices(Figure 1). Therefore, it would have been obvious to use a plurality of USB-to-IDE bridges in the system of Jacobs since this would allow more IDE devices to be connected in Jacobs' USB system. Therefore claim 18 is rejected.

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8. Regarding claim 19, Jacobs discloses a data storage system, further comprising a carrier for each IDE data storage device, such that each IDE disk drive and corresponding USB-to-IDE bridge are stored in the respective carrier(Figure 6, 160).

9. Claims 3, 7, 15, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs in view of the USB Specification 2.0.

10. Regarding claim 3, Jacobs does not specifically disclose a system, further comprising one or more USB hubs, each USB hub connected between two or more USB-to-IDE bridges and a USB controller. However the USB specification discloses a system further comprising one or more USB hubs(Section 4.8.2.1; Figure 4-4). Therefore, it would have been obvious to use multiple hubs, as disclosed in the USB specification, in the system of Jacobs, since this would increase the number of available ports to be used by devices.

11. Regarding claim 7, Jacobs does not specifically disclose a system, further comprising at least one USB hub connected between a number of the USB-to-IDE bridges and one of the USB controllers. However the USB specification discloses a system further comprising one or more USB hubs(Section 4.8.2.1; Figure 4-4). Therefore, it would have been obvious to use multiple hubs, as disclosed in the USB specification, in the system of Jacobs, since this would increase the number of available ports to be used by devices.

12. Regarding claim 15, Jacobs does not specifically disclose a method further comprising the steps of: providing at least one USB hub; connecting each hub to a USB controller; and connecting two or more USB-to-IDE controllers to each hub, such that each hub is connected between a USB controller and two or more USB-to-IDE controllers. However the USB specification discloses a system further comprising one or more USB hubs(Section 4.8.2.1; Figure 4-4). Therefore, it would have been obvious to use multiple hubs, as disclosed in the

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USB specification, in the system of Jacobs, since this would increase the number of available ports to be used by devices.

13. Regarding claim 22, Jacobs does not specifically disclose a system, further comprising at least one USB hub connected between a number of the USB-to-IDE bridges and the USB controller. However the USB specification discloses a system further comprising one or more USB hubs(Section 4.8.2.1; Figure 4-4). Therefore, it would have been obvious to use multiple hubs, as disclosed in the USB specification, in the system of Jacobs, since this would increase the number of available ports to be used by devices.

14. Regarding claim 23, Jacobs does not specifically disclose a system, further comprising one or more USB hubs, each USB hub connected between two or more USB-to-IDE bridges and the USB controller. However the USB specification discloses a system further comprising one or more USB hubs(Section 4.8.2.1; Figure 4-4). Therefore, it would have been obvious to use multiple hubs, as disclosed in the USB specification, in the system of Jacobs, since this would increase the number of available ports to be used by devices.

15. Claims 4-6, 9, 12-14, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs in view Huang et al.('134), hereinafter referred to as Huang.

16. Regarding claim 4, Jacobs discloses using a USB plug and play connection to access an ATA device(Column 3, Line 55). Jacobs does not specifically disclose a system, wherein each IDE device can be utilized in hot plugging. However, Huang discloses a system where a device can be utilized in hot plugging(Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

17. Regarding claim 5, Jacobs discloses using a USB plug and play connection to access an ATA device(Column 3, Line 55). Jacobs does not specifically disclose a system, wherein one or

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more IDE devices can be connected/disconnected to/from the system while the system is operating. However, Huang discloses a system, wherein a device can be connected/disconnected to/from the system while the system is operating (Column 3, Lines 1-3, 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

18. Regarding claim 6, Jacobs discloses using a USB plug and play connection to access an ATA device (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least a third IDE device coupled to a corresponding USB-to-IDE bridge can be connected to the USB controller while the system is operating. However, Huang discloses a system, wherein a device coupled to a corresponding bridge can be connected/disconnected to/from the USB controller while the system is operating (Column 3, Lines 1-3, 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

19. Regarding claim 9, Jacobs discloses using a USB plug and play connection to access an ATA device (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least one additional IDE device coupled to a corresponding USB-to-IDE bridge can be connected to the USB hub while the system is operating. However, Huang discloses a system, wherein a device coupled to a corresponding bridge can be connected to the USB hub while the system is operating (Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

20. Regarding claim 12, Jacobs discloses using a USB plug and play connection to access an ATA device (Column 3, Line 55). Jacobs does not specifically disclose a method, further

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comprising the steps of hot plugging/unplugging one or more IDE devices to/from the USB-to-IDE bridges. However, Huang discloses a method where a device can be utilized in hot plugging/unplugging(Column 3, Lines 1-3, 31-34). Therefore it would have been obvious to use Huang's method of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

21. Regarding claim 13, Jacobs discloses using a USB plug and play connection to access an ATA device(Column 3, Line 55). Jacobs does not specifically disclose a method, wherein one or more IDE devices can be connected/disconnected to/from the system while the system is operating. However, Huang discloses a method, wherein a device can be connected/disconnected to/from the system while the system is operating(Column 3, Lines 1-3, 31-34). Therefore it would have been obvious to use Huang's method of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

22. Regarding claim 14, Jacobs discloses using a USB plug and play connection to access an ATA device(Column 3, Line 55). Jacobs does not specifically disclose a method, wherein at least a third IDE device coupled to a corresponding USB-to-IDE bridge can be connected/disconnected to/from the USB controller while the system is operating. However, Huang discloses a method, wherein a device coupled to a corresponding bridge can be connected/disconnected to/from the USB controller while the system is operating (Column 3, Lines 1-3, 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

23. Regarding claim 20, Jacobs discloses using a USB plug and play connection to access an ATA device(Column 3, Line 55). Jacobs does not specifically disclose a system, wherein one

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or more IDE devices can be disconnected from the system while the system is operating.

However, Huang discloses a system, wherein a device can be disconnected from the system while the system is operating (Column 3, Lines 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

24. Regarding claim 21, Jacobs discloses using a USB plug and play connection to access an ATA device (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least a third IDE device coupled to a corresponding USB-to-IDE bridge can be connected to the USB hub while the system is operating. However, Huang discloses a system, wherein a device coupled to a corresponding bridge can be connected to the USB hub while the system is operating (Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

25. Claims 8, 16-17, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs in view of the USB Specification 2.0, and in further view of Huang.

26. Regarding claim 8, Jacobs discloses a device being plug and play (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein one or more IDE devices can be disconnected from the system while the system is operating. However, Huang discloses a system, wherein a device can be disconnected from the system while the system is operating (Column 3, Lines 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

27. Regarding claim 16, Jacobs discloses a device being plug and play (Column 3, Line 55). Jacobs does not specifically disclose a method, further comprising the steps of disconnecting

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one or more of the IDE devices from the system while the system is operating. However, Huang discloses a method, wherein a device can be disconnected from the system while the system is operating(Column 3, Lines 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

28. Regarding claim 17, Jacobs discloses a device being plug and play(Column 3, Line 55). Jacobs does not specifically disclose a method, further comprising the steps of connecting at least one additional IDE device coupled to a corresponding USB-to-IDE bridge, to one of the hubs while the system is operating. Huang discloses a method, further comprising the steps of connecting at least one additional IDE device coupled to a corresponding USB-to-IDE bridge, to one of the hubs while the system is operating(Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

29. Regarding claim 24, Jacobs discloses a device being plug and play(Column 3, Line 55). Jacobs does not specifically disclose a system, wherein one or more IDE devices can be disconnected from the system while the system is operating. However, Huang discloses a system, wherein a device can be disconnected from the system while the system is operating(Column 3, Lines 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

30. Regarding claim 25, Jacobs discloses a device being plug and play(Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least one additional IDE storage device coupled to a corresponding USB-to-IDE bridge, can be connected to one of the hubs while the system is operating. Huang discloses a system wherein a device coupled to a

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corresponding bridge, can be connected to one of the hubs while the system is operating (Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

31. Regarding claim 26, Jacobs discloses a device being plug and play (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least one additional IDE storage device coupled to a corresponding USB-to-IDE bridge and associated hub, can be connected to the USB controller while the system is operating. Huang discloses a system, wherein a storage device coupled to a corresponding bridge and associated hub, can be connected to the USB controller while the system is operating (Column 3, Lines 1-3). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

32. Regarding claim 27, Jacobs discloses a device being plug and play (Column 3, Line 55). Jacobs does not specifically disclose a system, wherein at least one IDE storage device coupled to a corresponding USB-to-IDE bridge and associated hub, can be disconnected from the USB controller while the system is operating. Huang discloses a system, wherein a device coupled to a corresponding bridge and associated hub, can be disconnected to the USB controller while the system is operating (Column 3, Lines 31-34). Therefore it would have been obvious to use Huang's system of hot plugging in the system of Jacobs, since this would allow devices to be connected and disconnected without turning off the system.

Response to Arguments

33. Applicant's arguments filed September 20, 2004 have been fully considered but they are not persuasive.

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34. In response to applicant's argument that plurality of USB-to-IDE bridges is not present in the prior art, examiner admits that Jacobs does not disclose a plurality of IDE-to-USB bridges. However, Official Notice was taken in the previous office action stating that using multiple bridges is well known in that art to increase the number of devices connected. Further, as evidence, Burke discloses multiple bridges to connect multiple devices(Figure 1). Therefore, it would have been obvious to use a plurality of USB-to-IDE bridges in the system of Jacobs since this would allow more IDE devices to be connected in Jacobs' USB system.

35. In response to applicant's argument that the prior art only shows a host and not a USB controller, it is inherent a USB controller is present in a host computer of a USB system. As further evidence, Jacobs discloses the host as having a USB controller(Column 3, Line 13)

36. In response to applicant's argument that a combination of Jacobs and Huang is non-functional, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Further, Huang discloses a converter that enables a non PnP, i.e. an ATA device, to have a hot PnP function on the system(Column, 3, Lines 17-18).

37. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.

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1992). In this case, the motivation to combine Jacobs with Huang is to be able to plug and unplug devices without shutting down the system, a concept well known in the art. Also, the motivation of utilizing a USB hub as stated in the USB specification is that a hub is a key element in the plug-and-play architecture of the USB since hubs serve to simplify USB connectivity and provide robustness at relatively low cost and complexity(USB Specification 2.0, Page 22, Section 4.8.2.1).

38. In response to the argument that only 2 devices can be connected, Official Notice was taken in previous action that the use of multiple bridges are well known in the art, which would be coupled with additional devices. Therefore more than 2 devices would be connected in the system.

Conclusion

39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nimesh G Patel whose telephone number is 571-272-3640. The examiner can normally be reached on M-F, 8:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nimesh G Patel
Examiner
Art Unit 2112

NP NP
December 16, 2004


SUMATI LEFKOWITZ
PRIMARY EXAMINER